

Created by Tim Creque  
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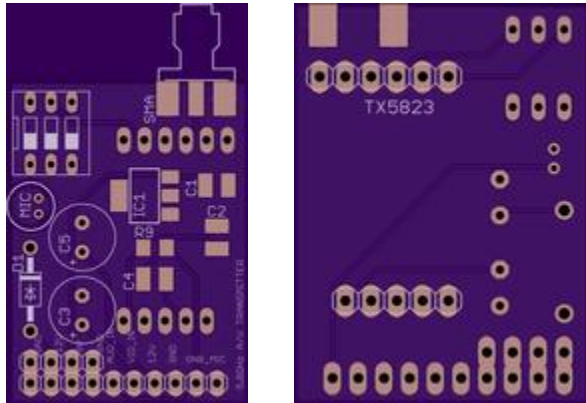
## DIY FPV 5.8GHz Audio/Video Transmitter and Receiver

Purpose:

To create 5.8GHz FPV transmitter and receiver printed circuit boards (PCBs) that can be ordered from OshPark.com, or possibly other PCB foundries, for a low price. Note that it takes 3-4 weeks from order to receipt from OshPark.com, but the prices are low for the quantity you will want. Credit goes to Bruce Simpson of [RCModelReviews.com](http://RCModelReviews.com) for the original 5.8GHz A/V transmitter. The discussion for this project can be found [here](#).



### 5.8GHz A/V Transmitter (**never power up without antenna attached**)



Tweaks from Bruce's design:

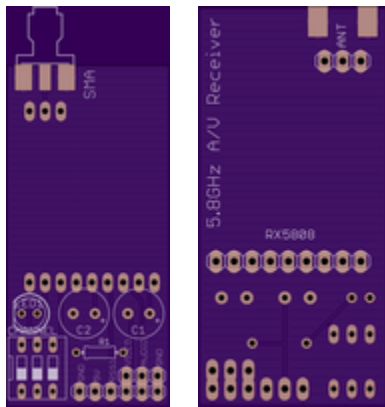
- .1 inch (2.54mm) pitch pin headers are used for ease of installation and use with easily available JST and servo connectors
- Added extra pins for connecting 5V UBEC to the 12V battery in line
- Added 5v power out for use with 5v FPV cameras, like the [808 #16 v2](#) (lens B (90 degree) or D (120 degree) for FPV/recording use)
- Added option of an onboard condenser microphone with a jumper shunt to activate it instead of the audio in port.
- Added solder pads for an SMA or RP-SMA board edge connector for adding/removing antenna. You can still mount the antenna permanently as Bruce suggests in [part 2 of his build video](#)
- The pin locations for the connections MAY be different than what Bruce for his own design

Parts:

- Printed circuit board (shown above) can be ordered in the US from [OSHPark.com](#) for \$8.90 shipped for three copies. The [vtx.brd](#) and [vtx.sch](#) files will be necessary for anyone wanting to edit the design using [EAGLE](#). Here is the [YouTube tutorial series](#) I used to learn EAGLE CAD, by [RPC Electronics](#).
- TX5823 A/V transmitter module ([SDSHobby.com](#)) ([FoxtechFPV.com](#)) [TX5823]
- [3.3V LM1117 voltage regulator in a SOT223 package](#) [IC1]
- [1N4001 - 1N4007 diode in the regular axial-lead package](#) [D1]
- 2x [ceramic 22uF 16V surface-mount capacitors in 1210 SMD package](#) [C1, C2]
- [Ceramic 4.7uF 16v surface-mount capacitor in 1210 SMD package](#) [C4]
- 2x [330-470uF 16V electrolytic capacitors](#) (radial) with 3.5mm lead spacing and 8mm can diameter [C3, C5]
- 3 position DIP switch with .1" (2.54mm) lead spacing ([here](#) and [here](#))
- [5v 3A switching UBEC](#)

- [1.8k ohm surface mount resistor in 1206 SMD package](#) [R9]
- [Female PCB edge mount SMA connector](#) (optional) [SMA]
- [Male 40 pin single row straight header .1" \(2.54mm\) pitch](#) (you will need at most 25 pins per TX)
- Electret condenser microphone with max diameter of .25" (6.35mm) and offset 1.9-2mm lead spacing ([example](#)) (optional) [MIC]
- [.1 inch \(2.54mm\) 2 pin jumper shunt, to activate onboard mic](#) (optional for onboard mic use & a jumper can be made from the clipped leads of D1, C3 or C5 to bridge [ONB\_MIC])

### 5.8GHz A/V Receiver (**never power up without antenna attached**)



#### Parts:

- Printed circuit board (shown above) can be ordered in the US from [OSHPark.com](#) for \$11.25 shipped for three copies. The [vrx.brd](#) and [vrx.sch](#) files will be necessary for anyone wanting to edit the design using [EAGLE](#). Here is the [YouTube tutorial series](#) I used to learn EAGLE CAD, by [RPC Electronics](#).
- RX5808 A/V receiver module ([SDSHobby.com](#)) ([FoxtechFPV.com](#)) [RX5808]
- 2x [470uF 16V electrolytic capacitors](#) (radial) with 3.5mm lead spacing and 8mm can diameter [C1, C2]
- 3 position DIP switch with .1" (2.54mm) lead spacing ([here](#) and [here](#))
- [5v 3A switching UBEC](#)
- 3 to [5mm LED](#) [LED1]
- 1.2k-2.2k ohm [1/8w-1/4w](#) axial (through hole) resistor [R1]
  - o This is to limit the current of the LED. Use [this link](#) to calculate the correct value and go with the next higher value than calculated if you receive an odd value. Source voltage is 5, but forward voltage and forward current will be supplied by LED seller)
- [Female PCB edge mount SMA connector](#) (optional) [SMA]
- [Male 40 pin single row straight header .1" \(2.54mm\) pitch](#) (you will need at most 21 pins per RX)

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See the RCModelReviews YouTube [video for antenna construction](#). Here is a good source for [straight male SMA pigtail cables](#), [right angle Male SMA pigtail cables](#), and [right angle SMA to straight SMA pigtail cable](#). Each cable will make two antennas.